National Institute of Environmental Health Sciences

Cod Gadus morhua and climate change: Processes, productivity and prediction

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Year: 2010
Journal: Journal of Fish Biology. 77 (8): 1899-1911

Abstract:

Environmental factors act on individual fishes directly and indirectly. The direct effects on rates and behaviour can be studied experimentally and in the field, particularly with the advent of ever smarter tags for tracking fishes and their environment. Indirect effects due to changes in food, predators, parasites and diseases are much more difficult to estimate and predict. Climate can affect all life-history stages through direct and indirect processes and although the consequences in terms of growth, survival and reproductive output can be monitored, it is often difficult to determine the causes. Investigation of cod Gadus morhua populations across the whole North Atlantic Ocean has shown large-scale patterns of change in productivity due to lower individual growth and condition, caused by large-scale climate forcing. If a population is being heavily exploited then a drop in productivity can push it into decline unless the level of fishing is reduced: the idea of a stable carrying capacity is a dangerous myth. Overexploitation can be avoided by keeping fishing mortality low and by monitoring and responding rapidly to changes in productivity. There are signs that this lesson has been learned and that G. morhua will continue to be a mainstay of the human diet.

Source: http://dx.doi.org/10.1111/j.1095-8649.2010.02782.x

Resource Description

Communication: ☑

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience: ☑

audience to whom the resource is directed

Policymaker

Exposure : ☑

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Food/Water Security

Food/Water Security: Fisheries

☑

Geographic Feature: ☑

resource focuses on specific type of geography

Ocean/Coastal

Geographic Location: ☑

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Exposure Change Prediction

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content